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1989

United States
Department of
Agriculture

Forest
Service

Western
Regions

Fire and the Changing Land

Fires were part of the landscape long before European man appeared in North America. Many were started naturally by lightning. Others were started by Indians accidentally or were set deliberately to improve hunting or to provide lush feed for livestock.

"Prairie Meadows Burning," George Catlin, 1832. Photo courtesy of National Museum of American Art, Smithsonian Institution, Gift of Mrs. Joseph Harrison, Jr.

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EXPERIMENT STATION

Natural Cycle of Life of a Western Forest

Forests Born of Fire

Since the dawn of time, lightning started most fires. Over many centuries, fire influenced the life cycles of plants and plant communities. Many plants adapted to fire effects, and some are even dependent upon fire for germination and growth.

Even as the smoke clears, the new forest is born in the ashes of fertile soils. The fire cycle of a forest leads from bare ground to fresh meadows to vigorous seedling and sapling trees, fast growing closed tree stands, and finally into mature and old growth forests. Along this cycle, various plants and animals, including ourselves have their moments of glory.

The best landscapes present a mix of opportunities and benefits. All kinds of plants and animals are found. Water is plentiful and pure. Different parts of the land are found in contrasting stages of the fire cycle. There is something for everyone.

Forests Need Change

Without fire, most of the forest would terminate in the last stage of the fire cycle. Everything would appear about the same. Plants and animals requiring other parts of the cycle would disappear.

Fire is the ignition key that starts the cycle again. It gives many plants and animals a chance to reproduce and grow again. There is renewed supply of water, wood, forage, wildlife, and places for you and me to enjoy.

Fire and Change

Like mankind, natural vegetation changes and matures. In the western Untied States fire has played its role in the changing land for over 12,000 years. Sometimes long intervals between fires resulted in large accumulations of fuels along with buildups of insects and diseases. When fire did occur it consumed almost all vegetation and triggered a rebirth of forests. At other times fire was a more frequent visitor but with a less severe impact on the land. Fires were essentially beneficial to the ecosystem, maintaining healthy grasslands, brushlands, or forests. Centuries ago, fires freely burned over a land that was relatively empty of people. Fire simply played its natural role in renewing cycles of life until...

...Man Learned to Control It

With the migration of European man westward, came permanent improvements, livestock, and managed forests. Protection of life and property, from the effects of wildfires, became paramount and spawned the formation of fire protection organizations.

About 5000 wildfires occur annually in the western portion of the United States. Modern suppression technology keeps most of these within 1 to 10 acres; however, exceptional large destructive fires still occur. We are becoming increasingly skilled at using fire itself to keep down the levels of natural fuels that would otherwise cause destructive wildfires. As we learned to control fires, we rediscovered what many prehistoric people already knew—that we could also use fire for many beneficial purposes.

Fires Do Good Things Also

Fires return nutrients to the soil which encourage the growth of the kinds of food plants that attract animals and birds. Without fire, the forest would remain in the last stage of the fire cycle—the older, mature forest—for a long time. Plants and animals requiring nutrients and vegetation from other parts of the cycle would disappear.

Fires burning under the right conditions can reduce the amount of flammable woody fuel which builds up into a catastrophic fire hazard. Reducing the fuel accumulation also allows wildlife easier access to the forest.

Insects and diseases are held in check by fire, maintaining healthy stands of trees.

Fire helps reduce the hazard of catastrophic fire, maintains the landscape, and encourages a healthy ecosystem.

Although Plants Grow Back After a Wildfire...

Soon after a prescribed fire cools, new growth begins...

- sunlight reaches the ground to nourish new plants and dormant seed.
- springs begin to flow.
- game and birds return to the habitat.
- the fire cycle is complete.
- livestock forage increases.

Two Kinds of Fire

When Viewed As An Enemy...

dangerous or likely to become destructive—we use the word "wildfire." A wildfire is any wildland fire that is unwanted and requires suppression.

When Viewed as Helpful...

a means for producing the kinds of vegetation and landscapes we want—we use the phrase "prescribed fire." A prescribed fire is the right kind of fire, in the right place, at the right time. It is accomplishing our land management objectives for us.

No Fire

Wildfire

Prescribed Fire

"Fire and people do in this agree,
They both good servants, both ill masters be."

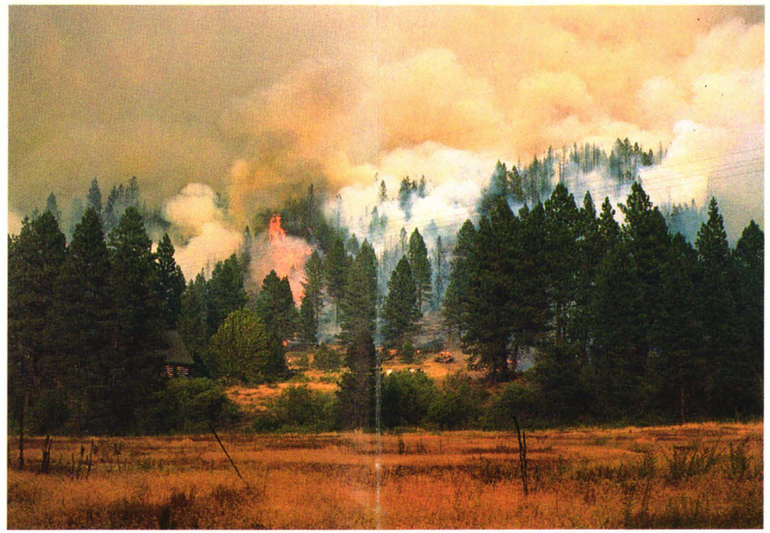
Fulke Greville
Inquisition Upon Flames

The Challenge...

"Our present job is to conserve the benefit (to resources) and minimize the damage to the watershed–in so far as technical skill and good administration can do it."

Aldo Leopold

Fire and water are linked together in well-tended and sustainable landscapes.



All fires produce smoke. The amount of smoke produced and the length of time it is present can be reduced through various smoke management practices during prescribed burning. We now recognize that, except for the recent past, the crystal-clear skies we associate with our mountain vistas may have been rare during the fire season. Burning prescriptions provide for rapid smoke dispersion and reduction of lingering haze.

...Leadership

Eighty years of experience has made the Forest Service an international leader in the use of fire in management of natural resources.

Wildflowers and openings contribute to high mountain scenery. Without fire, trees can close up these vistas in a relatively few years.

Fires, when properly managed, can create both pleasing and productive vegetation mosaics.

Many kinds of wildlife and domestic livestock use the meadows and meadow edges created or maintained by fire.

Nearly everywhere was evidence of past fires. Fire burning around the base of tree stems charred portions of the stem from time to time leaving a record in the tree rings of the frequency of fire.

A "catfaced" stem of ponderosa pine records a story of fires.

Cross section of a pine stem reveals a record of 13 fires between 1815 and 1907. Fires burned around this tree an average of every 7 years during this 93-year period. (Lab of Tree-Ring Research, Univ. of Arizona.)

Illustrations by Russ Chancellor.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1989—675-593

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